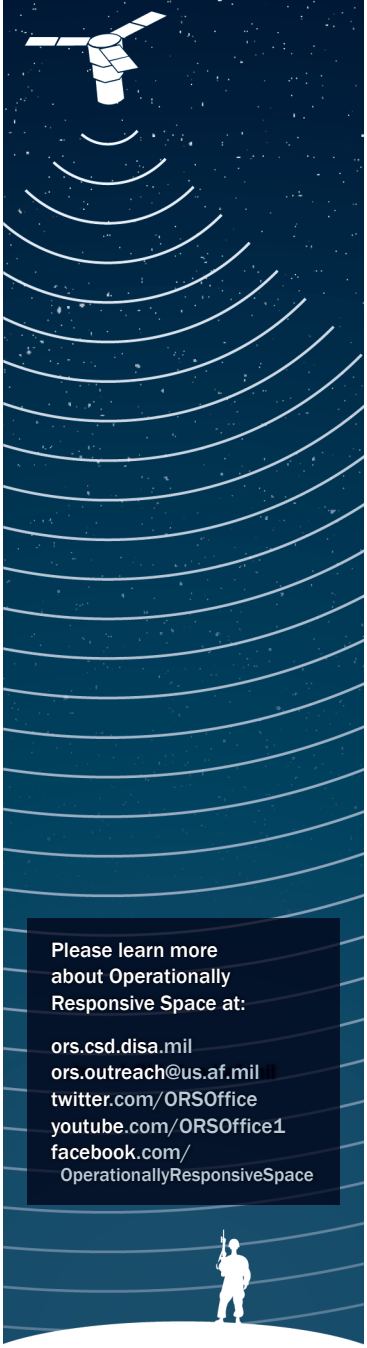
OPERATIONALLY RESPONSIVE SPACE

ORS

Operationally Responsive Space–3

"The Enabler Mission"



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Mission Description

The ORS Office is dedicated to building the enabling infrastructure allowing for decreased launch timelines and overall cost savings. The ORS-3 mission demonstrates several ORS objectives in our attempt to make access to space more efficient and cost effective.

First, this mission is demonstrating the use of an FAA Licensing approach of a Government launch system to take advantage of a more commercial like process. This allows the launch service contractor, Orbital Sciences Corporation, to take advantage of commercial practices that will potentially drive the overall launch costs and timelines lower. Additionally, the mission will demonstrate a secondary payload adapter designed to dispense multiple CubeSats known as CubeStack. This adapter allows for up to eight 3U CubeSats (or equivalence of) to be manifested. This allows for the additional launch capacity to be used and increases access to space for CubeSat programs that are executing science mission or demonstrating new technologies.

The ORS Office has been working on several enablers that focus on automating time consuming and thus costly processes. Two new tools have been developed, the first focuses on automating the launch service contractor's mission trajectory development. As a result of the ORS investment in this area, a 3 to 4 month process has been automated and produces a validated flight trajectory and the necessary data to complete the mission specific software data load in just under 48 hours. A second process that has been automated is focused on the flight safety development of the mission rules and graphical user interfaces the flight safety officers use. Again the ORS investment has taken a multi month process and reduced that to five days. In both cases that not only represents a responsive solution, it also reduces the engineering hours which leads to lower cost.

Finally, the ORS Office has partnered with the Government safety offices at the Air Force and NASA ranges to develop an Autonomous Flight Safety System (AFSS). An AFSS box will be flown on ORS-3 in a demonstration mode which will also serve as one of three certification flights. Once completed, AFSS has the potential to significantly reduce the cost of range operation and maintenance cost by eliminating the aging flight safety infrastructure that is currently used.

Mission Goals

Commercial like launch operations | **Demonstrate, test and verify ORS Enabling technologies**

Partners:

Space Test Program
NASA Ames
SMDC, NASA LSP, CalPoly, NRO
Orbital
Space Dynamics Laboratory
Many aerospace industry partners

Major Milestones:

Manifest Decision June 2012
Launched: 19 November 2013

The ORS–3 Mission will:

1. Demonstrate alt execution methods for launch services that reduces overall launch costs using an FAA license.
2. Demonstrate new hardware that allows small launch vehicle to fly multiple CubeSats in a manner that is benign to the primary mission.
3. Demonstrate an Autonomous Flight Safety Assembly which will have the most enduring impact on how flight safety is achieved for all launch systems.

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